

WHAT IS CLAIMED IS:

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1. A method for controlling a data read/write operation comprising:

a data receiving step of receiving predetermined data to be written to a disk from an upper-level host system;

a data processing step of conducting predetermined processing on said received data; and

a data write-in step of writing said processed data to said disk,

10 wherein said data processing step comprises:

a data dividing step of dividing said data received at said data receiving step into a plurality of data items and also generating parity data;

15 a data storing step of individually storing said divided data items and said parity data items into cache modules respectively;

a data repairing step of fetching said divided data items and said parity data from said cache modules and repairing one of said divided data items, if said one is damaged, using said parity data; and

20 a data combining step of combining said divided data items.

2. A method for controlling a data read/write operation comprising:

a data read-out step of reading out
predetermined data to be transmitted to an upper-level
5 host system from a disk;

a data processing step of conducting
predetermined processing on said read out data; and

a data transmitting step of transmitting said
processed data to said upper-level host system,
10 wherein said data processing step comprises:

a data dividing step of dividing said
data read out at said data read-out step into a
plurality of data items and also generating parity
data;

15 a data storing step of individually
storing said divided data items and said parity data
items into cache modules respectively;

a data repairing step of fetching said
divided data items and said parity data from said cache
20 modules and also repairing one of said divided data,
if said one is damaged, using said parity data; and

a data combining step of combining said
divided data.

3. A disk array apparatus comprising an array
controlling unit for receiving an instruction from an
upper-level host system to thereby write
predetermined data to or read said predetermined data
5 out from a disk and also conduct operational

processing on said predetermined data, wherein said array controlling unit comprises:

10 a data dividing function for dividing said predetermined data into at least two data items and also generating parity data for said predetermined data; and

15 a data combining function for repairing one of said divided data items, if said one is damaged, using said parity data and also combining said divided data items.

4. A disk array apparatus comprising an array controlling unit for receiving an instruction from an upper-level host system to thereby write predetermined data to or reading said predetermined data from a disk and also conduct operational
5 processing on said predetermined data, wherein said array controlling unit comprises:

10 a data dividing section for dividing said predetermined data into at least two data items and also generating parity data based on said predetermined data;

a plurality of cache modules for temporarily storing said divided data items and said parity data respectively; and

15 a data combining section for repairing said divided data item stored in one of said cache modules, if said one fails, using the remaining ones of said

divided data items and said parity data and also combining said divided data.

5. The disk array apparatus according to Claim 4, wherein said cache modules are set to have an equal capacity.

6. The disk array apparatus according to Claim 4, wherein each of said divided data items and said parity data are set to have an equal capacity.

7. The disk array apparatus according to Claim 4, 5, or 6, wherein a total number of said divided data items and said parity data items is set equal to a number of said cache modules.

8. The disk array apparatus according to Claim 4, wherein a number of said divided data items is set one smaller than a number of a number of said cache modules.

9. A recording medium for recording a data read/write controlling program, said program comprising:

a data dividing process for receiving
5 predetermined data to be written to a disk from an upper-level host system to then divide said predetermined data into a plurality of data items and also generate parity data;

a data storing process for individually storing
10 said divided data items and said parity data into cache modules respectively;

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a data combining process of combining said divided data items to then write this combined data to said disk.